



GARY R. HERBERT  
Governor

GREGORY S. BELL  
Lieutenant Governor

# State of Utah

## DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER  
Executive Director

### Division of Oil, Gas and Mining

JOHN R. BAZA  
Division Director

February 1, 2012

Glen Eurick  
Kennecott Utah Copper, LLC  
4700 Daybreak Parkway  
South Jordan, Utah 84095

Subject: Initial Review of Notice of Intention to Commence Large Mining Operations, Kennecott Utah Copper, LLC; Bonneville Borrow Mine, M/035/0046, Salt Lake County, Utah

Dear Mr. Eurick:

The Division has completed a review of the referenced Notice of Intention to Commence Large Mining Operations which was received November 29, 2011. The attached comments will need to be addressed before tentative approval may be granted.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address only those items requested in the attached technical review by sending replacement pages of the original mining notice using **redline and strikeout** text. After the notice is determined technically complete, we will ask that you send us two clean copies of the complete and corrected plan. Upon final approval, we will return one copy stamped "approved" for your records.

The Division will suspend further review of the Notice of Intention until your response to this letter is received. If you have any questions in this regard please contact me at 801-538-5261 or Leslie Heppler at 801-538-5257. Thank you for your cooperation in completing this permitting action.

Sincerely,

Paul B. Baker  
Minerals Program Manager

PBB: lah: eb  
Attachment: Review  
SHPO Letter  
Cc: DBacon@utah.gov  
P:\GROUPS\MINERALS\WP\M035-SaltLake\M0350046-BonnevilleBorrow\final\REV1-4532-01232012.doc



**Initial REVIEW OF NOTICE OF INTENTION  
TO COMMENCE LARGE MINING OPERATIONS**

**Kennecott Utah Copper, LLC  
Bonneville Borrow**

**M/035/0046  
January 23, 2012**

**General Comments:**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
1	General	Submittal should be formatted to easily incorporate additional revisions and amendments.	lah	
2	General	Additional comments from the Division can be generated in the future based on submittals received in the future, every attempt should be made by the Operator to submit a complete NOI the first time around.	lah	
3	All	Add permit number M/035/0046	lah	
4	All	All slope angles need to include H:V (example on page 10 there is 1:1, 2.5:1 and then 2.5:1 (horizontal: vertical)) The slope call outs need to be consistent throughout. Page 10 should have 1H:1V, 2.5H:1V, and 2.5H:1V. This comment applies to the entire document. ( include page 30, 31)	lah	

**R647-4-104 - Operator's, Surface and Mineral Ownership**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
5	Page 5 number 1.	Please add Kelly D. Sanders to the Operator name. The Permit has to be in the name of one of the Registered Principals on the Dept. of Commerce web site. Sanders will also be the one to sign the MR-RC and the bond will also be in his name. Sanders can then send a letter to authorize changes to the permits to whoever he delegates the task of the permitting process by sending a letter signed by Sanders to OGM (this was Kelly Payne on the other permits)	lah	
6	Page 6 Top of page	Add the Fax and email address.	lah	

**R647-4-105 - Maps, Drawings & Photographs**

**General Map Comments**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
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Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
7	Figures - All	As shown, all streams are perennial, please clarify between perennial and intermittent streams. Two streams are shown to dead end, please show clarify.	lah	
8	Figures - All	On all figures that show the excavations, please add an arrow and sump location to the borrow area floors to show water storage of any surface storm water as is written on page 24 and 25. (ie add the detail of Figure 2 SWPPP to Figures 4A, 4B and 4C	lah	

#### 105.1 - Topographic base map, boundaries, pre-act disturbance

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
9	Figure 2	It is not clear the boundary of operator's surface ownership, as color in legend doesn't match the colors in the map. Please clarify.	lah	

#### 105.2 - Surface facilities map

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
10	Figure 5b	Straw Hay Bales are old technology; OGM prefers stone check dams, as they fit small irregular topographic contours better.	lah	
11	Figure 5c	Please show locations on Figures (and not plans) or change note to read "as directed by engineer"	lah	
12	Figure 5c	Silt fences shown on the figure are high maintenance, Add a note that the silt fences will be maintained on an ongoing basis	lah	

#### 105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
13	Figure 4d & 4e	The 3-D renderings of the Phase 1 are nice, but OGM would rather see interim reclamation treatments on a plan map.	lah	
14	Figure 5	Please show which reclamation treatments will be done at the different locations, the road vs. highwall vs. 2.5H:1V treatments	lah	
15	Figures 6 & 6a	Please refer in a note which figure the cross sections are located on (ie Fig 4B, 4C)	lah	
16	Figures 6 & 6a	Please add a legend with line styles for existing and final grade lines	lah	
17	Figures 6 & 6a	OGM prefers no vertical exaggeration, but it is not required by rule. Add maximum slope angles in the form of "*H:1V" if you resubmit with vertical exaggeration	lah	
18	Figure 9	Re-title map as surface geologic map	lah	
19	Figure 9	Add strike and dip to the Kessler Canyon formation, on the map	lah	
20	Figure 9	Re-label in the legend and on the map - PP to PPok to match strat column to the left of the figure, or other modification that the operator might suggest to Figure 9, so the left strat column matches the right side of the map.	lah	

#### 105.4 - Photographs



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Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
21	Appendix A	A map showing photo location is helpful, but not required by rule.	lah	

### **R647-4-106 - Operation Plan**

#### **General Operation Comments**

#### **106.2 - Type of operations conducted, mining method, processing etc.**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
19	Page 11 para 4	As written "...fines from crushing will be disposed of off the borrow sites." Please show the location of where the fines will be placed and include in the bond.	lah	
20	Page 12 Para 3	The last sentence is incorrect, as state above each pattern has 250 drill holes, Hence it would be more than 89 cubic yards.	lah	
21	Page 12 and/or Page 30	NOI needs to include blasting safety as related to public safety. Include things such as maximum ips for vibration, etc.	lah	
22	Page 12 para 4	As written "...assumed to be electronic blast initiation..." Kennecott usually uses nonel. Please verify.	lah	
23	Page 12 para 5	As written "Blast protocols will follow Kennecott's and Rio Tinto safety standards..." include MSHA	lah	
24	Page 12 Para 3	As written "...cyd (cy)..." Please rewrite, include definition of abbreviation used. This applies to the rest of the document, MSL, K BYC, MCY (see paragraph 1 on page 18 for proper format)	lah	

#### **106.3 - Estimated acreages disturbed, reclaimed, annually**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
25	Table 1	Tie table one estimated acres to either figures 5 and 5A	lah	

#### **106.4 - Nature of materials mined, waste and estimated tonnages**

Comm ent #	Sheet/Page/ Map/Table #	Comments	Initials	Review Action
26	Page 13 last para	As written "...3.1MCY..." and Table 2 notes 2,900,000, please correct which number is in error.	lah	
27	Table 2	Add a dash "-" where it is anticipated to be "none", ie avoid the error of omission	lah	

#### **106.5 - Existing soil types, location, amount**

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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
28	Back of page 15 & 16	To accommodate the large Table 3, the back of page 15 and 16 is blank, please add the words "this page is intentional left blank"	lah	

#### 106.6 - Plan for protecting & re-depositing soils

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

#### 106.7 - Existing vegetation - species and amount

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

#### 106.8 - Depth to groundwater, extent of overburden, geology

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
29	Page 21 para 3	Paragraph is titled "Overburden Materials" and it refers to Figure 4a, which contains Growth Media Stockpiles. If it is the intent of the operator to mine and process the "overburden material" and store the growth media, please state in the NOI. (based on section 106.9 (page 22), there will be no overburden material)	lah	
30	Page 21 para 4	Refer to Figure 9 in the paragraph	lah	

#### R647-4-109 - Impact Assessment

##### 109.1 - Impacts to surface & groundwater systems

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
31	Appendix E – no page #	Include the info from Appendix E – from the un numbered page that is titled "...permitting position statement"	lah	

##### 109.2 - Impacts to threatened & endangered wildlife/habitat

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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

### 109.3 - Impacts on existing soils resources

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

### 109.4 - Slope stability, erosion control, air quality, safety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
32	Appendix & Page 29	Submit Air Quality Permit when received	lah	
33	Page 30 3 <sup>rd</sup> bullet	Reword – Blast survey does not need to be added to the plan, but documentation available at KUC.	lah	

### 109.5 - Actions to mitigate any impacts

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

## R647-4-110 - Reclamation Plan

### 110.1 - Current & post mining land use

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
34	Omission	Current mining land use is clearly stated, but post mining land use is not state. Add post mining land use		

### 110.2 - Roads, highwalls, slopes, drainages, pits, etc., reclaimed

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
35	Page 31 para 6	Clarify the 5,000ft of road, include width in the description, example – “there is 5,000 linear feet of road with 70% - 80 feet wide and the remainder less than 50 feet wide.” Use actual numbers.	lah	
36	Page 31, para 6	It is not noted if the roads will be buried or ripped to facilitate vegetation growth, please clarify	lah	
37	Page 32, para 6	The grading of the pit floor to a “1 percent slope” is an important concept and should be included elsewhere in the NOI when discussing drainage and hydrology	lah	



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Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
38	Omission	It is not clear if the final slope of the 1H:1V highwall will be left with benches or as a constant slope to eliminate rockfall.	lah	
39	Omission	Please note in the plan that the haul road and the drainage crossing (at the north west corner of the process area) will be maintained for the north-south roads vertical alignment, also include notes on the other crossing of the haul roads. Show on figure 5	lah	

#### **110.5 - Revegetation planting program**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action

#### **R647-4-112 - Variance (List all variances requested and make a finding if approving.)**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
40		No variances requested – No further action needed	lah	

#### **R647-4-113 – Surety**

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
41	Page 36 para 1	As written "...included below" Yet nothing is written below. Please include the OGM Summary worksheet with the bonded acres included, along with the latest escalation data.	lah	
42	Appendix F	Please provide the Division with detailed reclamation cost estimates using the Division's forms. If the Operator does not want to include reclamation cost estimates until the plan has been approved please note in the submittal.	whw	